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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,105	11/25/2003	Howard S. Baker	X-0061	1317
34014	7590	12/16/2005		
CHEVRON TEXACO CORPORATION P.O. BOX 6006 SAN RAMON, CA 94583-0806			EXAMINER TIBBITS, PIA FLORENCE	
			ART UNIT 2838	PAPER NUMBER

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,105

Applicant(s)

BAKER, HOWARD S.

Examiner

Pia F. Tibbits

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/25/03(2 pgs).
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office action is in answer to the amendment filed 5/16/2005. Claims 1-49 are pending.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the (laser wafer trimmed) resistors, the computer, the calculating means must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1, 15 and 26 are objected to because of the following informalities: "and mixtures thereof". Applicant to explain how differential amplifiers and a switching network get "mixed". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1-49 recite "wherein the power supply derives its power from the plurality of cells", which contradicts the scope of the invention, i.e., "monitoring of the fuel cell voltages". In other words, the cells are continuously discharged to power the monitoring apparatus, and therefore, their voltage decreases. To continue prosecution it was assumed that external power is provided.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over disclosed prior art, **Masse et al.** [hereinafter Masse] [20020180447] in view of disclosed prior art, **James**[6140820].

Masse discloses in figures 1-3b a system for monitoring a plurality of cell voltages 38-44 of an electrochemical device 13 for a plurality of cells connected in series, the system comprising: (a) a plurality of connecting pins for removable connection across the plurality of cells [see fig.2]; (b) a plurality of differential amplifiers 14-16, each differential amplifier having a plurality of resistors R1-R3 providing matching, so that common mode signals are rejected, while differential input signals are amplified, each differential amplifier having two inputs and one output, wherein the inputs are each connected to the plurality of connecting pins [see fig.2]; (c) a switching network 22 having a plurality of

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inputs and one output, the inputs of the switching network connected to the outputs of the differential amplifiers [see fig.2]; (d) not more than one analog to digital converter 24 having an input connected to the output of the switching network and adapted to provide digital values indicative of the voltages measured by the plurality of differential amplifiers [see fig.2]; and (e) a power supply to supply regulated power to at least one electrical circuit consisting of the differential amplifiers, switching network, and mixtures thereof, wherein the power supply derives its power from the plurality of cells. Masse does not disclose laser wafer trimmed resistors, the A/D converter monitoring 16 cells, and a power supply to supply regulated power to at least one electrical circuit consisting of the differential amplifiers, switching network, and mixtures thereof, wherein the power supply derives its power from the plurality of cells.

As to the resistors being laser wafer trimmed, absent any criticality, is only considered to be the use of "optimum" or "preferred" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the resistors disclosed by Masse, in order to provide IC resistors, since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. See *In re Leshin*, 125 USPQ 416.

As to the A/D converter monitoring 16 cells: it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a selection for the number of cells monitored by the A/D converter, since it has been held that discovering an "optimum" or "preferred" value for a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

James discloses in fig.1 voltage regulators 26 to furnish operating power to the voltage scanning units 24. In this manner, each voltage regulator 26 provides one or more regulated supply voltages (via power supply line(s) 27) to a different one of the voltage scanning units 24. The ground of each voltage regulator 26 is connected to the same ground as the voltage scanning unit 24 to which the voltage regulator 26 supplies power [column 3, lines 30-35]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Masse's apparatus and

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include voltage regulators 26, as disclosed by James, in order to provide one or more regulated supply voltages to a different one of the voltage scanning units.

As to claims 2, 3, see remarks and references above.

As to claim 4, the plurality of cells comprise battery cells: it would have been obvious to a person having ordinary skill in the art at the time the invention was made to replace the fuel cells used by the Prior Art with battery cells because both are very well known, alternate types of power supplies which will perform the same function, if one is replaced with the other, and the use of this particular type of power supply is considered to be nothing more than the use of one of numerous and well known alternate types of power supplies that a person having ordinary skill in the art would have been able to provide using routine experimentation in order to provide power.

As to claim 5, plurality of cells have a cumulative maximum voltage of about 270 volts: it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a selection for the cumulative maximum voltage, since it has been held that discovering an "optimum" or "preferred" value for a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 6, each cell has a maximum voltage of about +/-300 volts: it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a selection for the maximum cell voltage, since it has been held that discovering an "optimum" or "preferred" value for a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 7: wherein said differential amplifiers each produce an output such that the voltage of a cell being measured is determined with an error of about 0.02 percent or less, absent any criticality, is only considered to be the use of "optimum" error for the differential amplifiers output that one having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation, since the courts have held that discovering an optimum value of a result

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effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also **MPEP 2144.05** statement with regard to "**obviousness of ranges**".

As to claim 8: wherein said differential amplifiers each produce an output such that the voltage of a cell being measured is determined with a gain nonlinearity error of about 3 parts per million or less, absent any criticality, is only considered to be the use of "optimum" gain nonlinearity error for the differential amplifiers output that one having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation, since the courts have held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also **MPEP 2144.05** statement with regard to "**obviousness of ranges**".

As to claims 9 and 10, Masse discloses a single housing, wherein each system component is housed therein [see paragraph 0004].

As to claims 11-14, Masse discloses controller 26 connected to PC 28 [see fig.2]. See also remarks and references above.

As to claims 15-34, see remarks and references above.

As to the method claims 35-49: the method steps will be met during the normal operation of the apparatus described above.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: **Lacy** [6313750] discloses a divider network adapted coupled to fuel cells of a fuel cell stack and providing pairs of signals. Each pair of signals is associated with a different fuel cell and indicates a terminal voltage of the associated cell and another voltage common to the pair of signals. The memory stores indications of different common mode gains, and each common mode gain indication is associated with a different one of the pairs of signals. The circuit is coupled to the memory and adapted to generate an indication of the terminal voltage from each pair based on the associated **common mode gain indication**. The prior art cited in PTO-892 and not mentioned above disclose related apparatus: **JP**

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2000092732 discloses a METHOD FOR JUDGING (VOLTAGE) SCATTERING OF BATTERY PACK AND BATTERY DEVICE including a number of unit cells 2 connected in series for composing a battery pack 3; a voltage detection circuit 4 consisting of a differential amplifier 10 for detecting the voltage of each unit cell 2, a multiplexer 11, and an AD converter 12. In each unit cell 2, a discharge circuit 5 with a discharge resistor 15 is provided. A control device 7 detects the SOC of the entire battery pack 3 according to the detection of a current sensor 6, obtains the OCV of each unit cell 2 based on the voltage of each unit cell 2 at that time, obtains the SOC according to the OCV of each unit cell 2 when the change rate of the OCV of each unit cell 2 corresponding to the change of the SOC of the entire battery pack 3 exceeds a specific value, and judges scattering. The unit cell with a large scattering of the SOC is discharged for correcting the scattering.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is 571-272-2086. If unavailable, contact the Supervisory Patent Examiner Karl Easthom whose telephone number is 571-272-1989. The Technology Center Fax number is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PFT

December 6, 2005

Pia Tibbits

Primary Patent Examiner